

SWBAT

practice measure the
information necessary to
calculate friction on the
cart

Sep 4-7:31 AM

Welcome!!!

SECA CP Physics
Thursday 18 February 2016



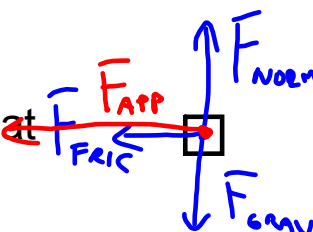
H. Leslie Grebe
Room C-244

Centering
(music)

- Show me SchoolView if you want phone in class...
- PhET Forces in 1d (also attach to pg 62)
- Hmwk: Pg 63 notes + Packet!!!

Opening Activity:

"The brakes are applied to a rightward moving car so it is skidding to a stop:" What should the force diagram look like? Why?



Free Body Diagram - worksheet carousel

CLASS SOLUTIONS

Sep 7-7:04 AM

What we should have solid:

Memorize our ~~5~~⁸ vocab cards, units, vector or not, definition, formula

Be able to answer distance vs displacement questions

Be able to make measurements of real-life motion. Know what is likely to make timing things difficult and how to get more reliable timing results

Be able to convert between miles and meters, between hours, minutes, and seconds

Be able to calculate speed = dist/time and velocity = disp/time

Know what all of the symbols in the UAM equations stand for and mean

Be able to turn a UAM word problem into a list of knowns and unknowns

Be able to pick the equation with those 4 things in it

Be able to put the knowns into that equation

(Be able to solve for the unknown)

→ PROJECTILES: v_x IS CONSTANT; $a_y = -9.8 \text{ m/s}^2$ ^{v_y CHANGES} PG 42

PG 43 TIME, Δt , CONNECTS x & y

PG 49 VECTORS INTO x & y , ADD VECTORS
SOH - CAH - TOA

PG 59 DIFFERENCE BETWEEN MASS & WEIGHT

PG 61 NET FORCE

PG 63 FREE BODY DIAGRAMS

$$F = m \cdot a$$

QW every day to review - gather responses to front board.

Dec 4-9:15 AM

Unit	Left-Side Items	Page	Right-Side Items	Page
	REFLECTION ON NOTES	2	EDITED ADAM SAUGE	3
	HOW FAR FROM BRIDGE	4	"FORT STUEBEN"	5
	REFLECTION ON NOTES	6	HAWK: BASE UNITS	7
	PR: DISTANCE & DISPLACEMENT	8	HAWK: FP DISPLACEMENT	9
	DIAGRAM & STEPS	10	TIMING & ERROR	11
	SUMMARY OF TIMING	12	HOW TO BUILD A TABLE	13
	PR: CONVERTING SOLUTIONS	14	HAWK: FP CONVERSIONS	15
	PR: VELOCITY & SPEED	16	HAWK: FP SPEED & VELOCITY	17
	SPEED WORD PROBLEMS	18	ALGEBRA FOR PHYSICS	19
	LAB JOURNAL 10/7	20	LAB JOURNAL 10/8	21
	...		HAWK: FP GRAPH POSITION	23
	LAB JOURNAL 10/12	24	EXPERIMENT RUBRIC	25
	26 USE FOR PROJECT	26		
	OBSERVATIONS OF ORF	28	FP: INTRO TO ACC.	29
	REVIEW FOR TEST	30	BALL ON RAMP	31
	VECTORS, DIRECTION	32	FP: BASIC ACC EXAMPLE	33
	PRACTICE UAM	34	FP: INTRO TO UAM	35
	FALLING OBJECTS PACKET	36	FP: INTRO TO FREEFALL	37
	MY FREE FALL WORD PROBLEM	38	3-ACT FALLING GLOWSTICK	39
	Toy popper experiment	40	Free fall class solutions	41
	Launched vs. Dropped	42	FP: INTRO TO PROJECTILE MOTION	43
	PROJECTILE SIMULATOR	44	FP: PROJ. MOTION PROBLEM	45
	PROJ. L PRACTICE PROBS.	46	PROJECTILES PRACTICE	47
	OUR VECTOR PRACTICE	48	FP - VECTOR COMPONENTS	49
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	MEASURE LAUNCHER	52	NOTES ON FINDING v_f & S_2	53
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	WKSHJ: 2-1	60	NET FORCE	61
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	PACKET: F.B.D.	62	FINDING FRICTION IN CART	65
	DATA/MEASURING CART	64		

Sep 5-9:09 AM

FRICTION PROJECT CHALLENGE

IF BY (MON 2/29)

- ALL PEOPLE W/ 2+ DAYS ATTENDANCE PER WEEK
 - GET >60% (PASSING) BASED ON PROJECT RUBRIC
- THEN CLASS PIZZA PARTY @ LUNCH TIME (\$2/person)

Feb 12-10:02 AM

PG 65 FINDING FRICTION ON CAR

Things we know:

$$F = m \cdot a$$

$$F_{\text{grav}} = W = m \cdot a_g$$

$$\text{Puller } m = 50 \text{ g} \times \frac{1 \text{ kg}}{1000 \text{ g}} = .050 \text{ kg}$$

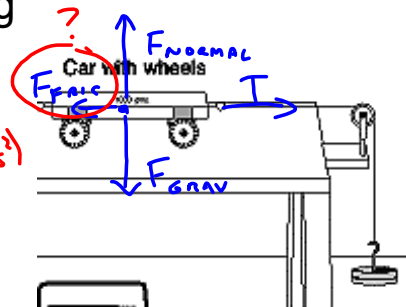
$$\text{Chunk } m = 1000 \text{ g} = 1 \text{ kg}$$

$$\text{Cart } m = 101.6 \text{ g}$$

$$F_{\text{grav}} = (m_{\text{car}} + m_{\text{chunk}}) \cdot (-9.81 \text{ m/s}^2)$$

Measure:

- distance on table
- time to travel from rest



$$a = ?$$

NEWTON'S 1ST LAW:

- OBJECTS KEEP DOING WHAT THEY WERE DOING UNLESS THERE IS A NET FORCE

↓
MAKES CAR ACCELERATE

Feb 11-10:19 AM

PG 64-65

What do we want to know about the motion of our cart? How can we get the best possible answer?

- STOP WATCHES = LET CAR GO?
- [SloPro INSTEAD] X 2?
- AS MUCH DISTANCE AS POSSIBLE
- LIGHTEST MASS THAT ACCELERATES 30g
- MAKE SURE CART IS STRAIGHT
- MARKED BEGINNING WITH TAPE, BUT IT ADDED FRICTION & CART DIDN'T MOVE, SO MOVED TAPE OVER
- HARD TO TOUCH/STOP CART EXACTLY AT BACK END

TRIAL 1: 76 cm, 20g
 $t_1 = 2.9 \text{ s}$ $t_2 = 9.4 \text{ s}$

TRIAL 2: 76 cm, 20g
 $t_1 = 3.3 \text{ sec}$ $t_2 = 8.7 \text{ s}$

WHY NOT THE SAME?
 $(9.4 - 2.9) = \Delta t = 6.5 \text{ s}$
 $(8.7 - 3.3) = \Delta t = 5.4 \text{ s}$

TRIAL 3: 69.7 cm, 30g
 $t_1 = 3.3 \text{ s}$ $t_2 = 7.8 \text{ s}$ $\Delta t =$

TRIAL 4: 69.7 cm, 30g
 $t_1 = 3.9 \text{ s}$ $t_2 = 7.7 \text{ s}$ $\Delta t =$

Feb 18-8:03 AM